

Planning and Investing in a Changing Climate:

Implementation of EO B-30-15

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Presentation to ICARP Technical Advisory Council

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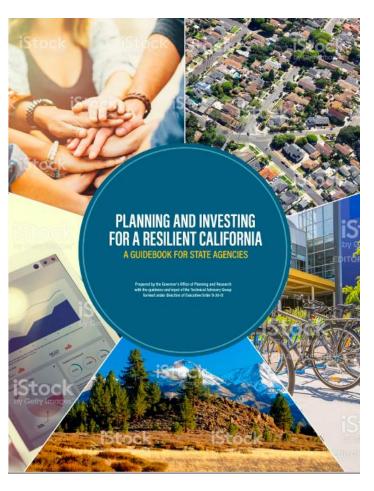
Executive Order B-30-15

- State agencies shall take climate change into account in their planning and investment decisions, and employ full life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives.
- State agencies' planning and investment shall be guided by the following principles
 - Priority should be given to actions that both build climate preparedness and reduce greenhouse gas emissions;
 - Where possible, flexible and adaptive approaches should be taken to prepare for uncertain climate impacts;
 - Actions should protect the state's most vulnerable populations; and
 - Natural infrastructure solutions should be prioritized.
- The state's Five-Year Infrastructure Plan will take current and future climate change impacts into account in all infrastructure projects





EO B-30-15 Technical Advisory Group



- Roughly 50 members
- Met from March 2016-January 2017
- Workgroups:
 - Scenarios
 - Community Development and Equity
 - Infrastructure
 - Metrics
- Product: Guidebook for State Agencies
 - What to plan for
 - How to plan differently



A Process for State Agencies

Step 1:

Identify how climate could affect your project or plan

- Identify impacts of concern
- Identify climate-senstitive planning parameters
- Identify metrics to track performance of plan or investment under changing climate

Step 2:

Select an analtyical approach to integrate climate change

- Consider the scale, scope, and context of climate disruption
- Select climate change scenarios and analytical approach for planning and design

Step 3:

Make a climate-informed planning or investment decision

- Evaluate alternatives or design
- Apply resilient decision-making principles

Step 4

Track and monitor progress, adjust as needed

- Evaluate metrics to track progress
- Implement adaptive management approaches



Understanding Impacts – Quantity and Quality

- <u>Project Lifetime</u>: The useful life of a project is important for identifying climate impacts of concern, considering both changing average conditions, occurrence of extreme events, and the pace of change.
- <u>Scale and Scope of Risk</u>: Consider the criticality or consequence of disruption to understand the scale and scope of the risk posed by changing climate conditions and extreme events.
- <u>Vulnerability and Adaptive Capacity</u>: Identify who and what is affected by climate-related disruptions to determine the vulnerability and adaptive capacity of the people, places and resources affected.
- The Nature of the Risk: Consider how a climate-related disruption will affect the ability of people, places and resources affected to adapt, learn, and prepare for future conditions.



Working Under Uncertainty – Managing Risk

Selection of Climate Scenarios

Optimistic/Adaptive

- RCP 4.5 or 2.6
- Monitor and adjust
- Live with change

Adaptive

- Mid-range RCP
- Pathways

Precautionary

- RCP 8.5
- Sensitivity analysis with higher extremes

Considerations	Consequences of impact or disruption	Low: Minimum disruption, limited scale and scope	Medium: Inconvenience, but limited in scope and scale	High: Unacceptable risk and/or extensive scale and scope
	Nature of disruption	 Future flexibility maintained People or systems readily able to respond or adapt 	Limits future flexibility	IrreversibleThreat to public health and safety
	Who or what is affected?	 Low impact on communities, infrastructure, or natural systems 	 Communities, systems, or infrastructure readily able to adapt or respond to change 	 Vulnerable populations Critical infrastructure Critical natural systems Areas of economic, historic, or cultural significance
	Economic Impacts	Low	Medium	High



Working Under Uncertainty

Analytical Approach

Simplest

- Straight use of parameters
- Fewer models
- Limited characterization of uncertainty

More Robust

- More GCMs
- Consideration of more scenarios
- Sensitivity analysis

Most Robust

- Larger # GCMs
- More complete characterization of uncertainty

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Resilient Decision Making Principles

- Prioritize actions that promote integrated climate action
- Prioritize actions that promote equity and foster community resilience
- Coordinate with local and regional agencies
- Prioritize actions that utilize natural and green infrastructure solutions and enhance and protect natural resources
- Base all planning and investment decisions on the best-available science.